# End of topic quiz

# Topic P6: Global challenges

## Instructions and answers for teachers

These instructions cover the learner activity section which can be found on [page 8](#_Chapter:_P4_of). This end of topic quiz supports OCR GCSE (9–1) Combined Science A (J250), Topic P6.

**When distributing the activity section to the learners either as a printed copy or as a Word file you will need to remove the teacher instructions section.**

### The Activity

This end of topic quiz is a teaching and learning resource comprised of 40 marks covering a range of question types. The quiz starts with some multiple choice questions (MCQs) and then moves on to some short answer questions and then finally on to some longer answer questions.

This resource can be used to test and consolidate understanding at the end of teaching the topic or to revisit and refresh knowledge at a later point in the course.

### Learning Outcomes

This end of topic quiz relates to the specification learning outcomes in Topic P6: Global challenges. The questions in this quiz cover a range of the following topics:

P6.1 Physics on the move

P6.2 Powering Earth

### Topic: P6 of J250 - Answers

**Total marks: 40**

1. Which of the following is a renewable source of energy? **[1 mark]**

|  |  |  |
| --- | --- | --- |
| **A** | Natural gas |  |
| **B** | Solar |  |
| **C** | Nuclear |  |
| **D** | Coal |  |

Your answer

**B**

1. What is the average walking speed of a human? **[1 mark]**

|  |  |  |
| --- | --- | --- |
| **A** | 0.5 m/s |  |
| **B** | 1.0 m/s |  |
| **C** | 1.5 m/s |  |
| **D** | 2 m/s |  |

Your answer

**C**

1. Which of the following affect braking distance? **[1 mark]**

|  |  |  |
| --- | --- | --- |
| **A** | Alcohol |  |
| **B** | Loud music |  |
| **C** | Worn tyres |  |
| **D** | Tiredness |  |

Your answer

**C**

1. A transformer has a p.d. of 20 V across the primary coil, and a current of 0.2 A.

The secondary coil has a p.d. of 50 V across it.

What current flows through the secondary coil? **[1 mark]**

|  |  |  |
| --- | --- | --- |
| **A** | 0.08 A |  |
| **B** | 0.5 A |  |
| **C** | 0.8 A |  |
| **D** | 5 A |  |

Your answer

**A**

1. Which of the following melts when too high a current passes through an electrical device?   
   **[1 mark]**

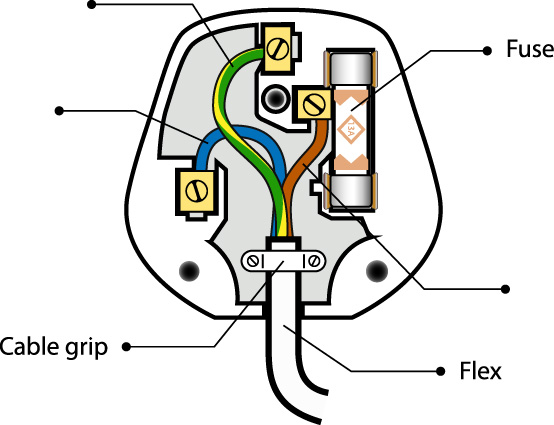
|  |  |  |
| --- | --- | --- |
| **A** | Earth wire |  |
| **B** | Fuse wire |  |
| **C** | Live wire |  |
| **D** | Neutral wire |  |

Your answer

**B**



earth ✓

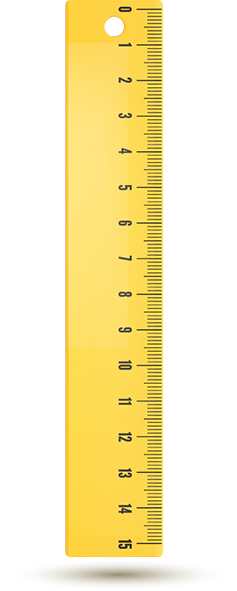


live ✓

neutral ✓

|  |  |  |  |
| --- | --- | --- | --- |
| **(a)** |  | Label the wires. **[3 marks]** | |
|  |  |  |  |
| **(b)** |  | What does each wire do? **[3 marks]** | |
|  |  | Live wire carries alternating current ✓  Neutral wire remains neutral compared to live wire ✓  Earth wire connects the casing to earth ✓ | |





|  |  |  |  |
| --- | --- | --- | --- |
| **(a)** | **(i)** | Write down how you could investigate the differences in reaction time with three classmates using a ruler **[5 marks]** | |
|  |  | One pupil holds ruler vertically a set distance above the other pupils’ hand ✓  One at a time the other pupils hold their fingers ready to catch the ruler as quickly as possible ✓  The distance from the marked point is measured and the experiment repeated ✓  Calculate the mean for each classmate ✓  The greater the distance the quicker the reaction time so the three pupils can be ranked ✓ | |
|  |  |  |  |
|  | **(ii)** | It is possible to use a stopwatch to test reaction time, by having one partner start the watch and the other stop it as fast as possible. Write down one difficulty associated with this method. **[1 mark]** | |
|  |  | Stopwatch is small, hard for both students to hold and press buttons ✓ | |

1. During a car crash the car and people in it feel a large deceleration.

|  |  |  |  |
| --- | --- | --- | --- |
| **(a)** |  | Write down, using Newton’s Laws, why this is dangerous to the people in the car. **[4 marks]** | |
|  |  | According to Newton’s Second Law ✓  deceleration is caused by a force ✓  a large deceleration causes a large force on the occupants ✓  this can damage their bodies ✓ | |
|  |  |  |  |
| **(b)** |  | Write down two different safety features inside the car, and give examples of how they increase safety. **[4 marks]** | |
|  |  | Crumple zone/seatbelt/airbag ✓  Reduce force acting on body by increasing time for person to stop moving ✓  Roll cage ✓  Ensure car doesn’t collapse on occupants ✓ | |

1. In the UK electricity is supplied to the country using the National Grid.

|  |  |  |  |
| --- | --- | --- | --- |
| **(a)** |  | What frequency is this energy supplied at? **[1 mark]** | |
|  |  | 50 Hz ✓ | |
|  |  |  |  |
| **(b)** |  | What is the process by which electricity is transported to our homes by the National Grid? **[5 marks]** | |
|  |  | Electricity generated in power station ✓  step up transformer increases voltage and transfers it into ✓  pylons and overhead lines ✓  step down transformer then decreases voltage ✓  ready for use at a safe voltage ✓ | |
|  |  |  |  |
| **(c)** |  | Why do we transmit electricity at high voltages? **[2 marks]** | |
|  |  | High voltage means a low current ✓  so less energy lost due to heating of wires ✓ | |

1. Currently the UK uses a number of different methods to generate electricity.

|  |  |  |  |
| --- | --- | --- | --- |
| **(a)** |  | Name two renewable methods the UK currently uses. **[2 marks]** | |
|  |  | Any two from:  Solar/wind/wave/tidal/hydroelectric | |
|  |  |  |  |
| **(b)** |  | Write down the pros and cons of using coal and wind to generate electricity.  In your opinion, which is better and why? **[5 marks]** | |
|  |  | **Coal - Pros:**  Plentiful/cheap to mine/easy to store/reliable process ✓  **Coal - Cons:**  Produce greenhouse gases/releases pollutant particles/releases sulphur dioxide ✓  **Wind - Pros:**  Takes up very little land/can be sited off shore/produces no greenhouse gases ✓  **Wind - Cons:**  Only works when there is wind/wind needs to be at specific speeds/visual pollution ✓  Statement comparing and choosing one ✓ | |

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If you are looking for examination practice materials, you can find the Sample Assessment Materials (SAMs) on the qualification webpage: [Combined Science A (9–1).](http://www.ocr.org.uk/qualifications/gcse-gateway-science-suite-combined-science-a-j250-from-2016/)

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# End of topic quiz

# Topic P6: Global challenges

## Learner Activity

### Topic: P6 of J250

**Total marks: 40**

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Your answer

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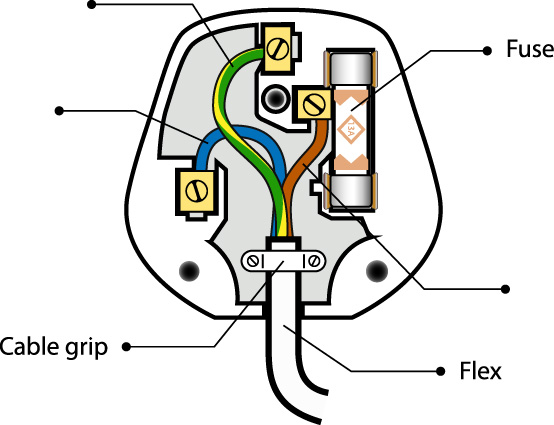
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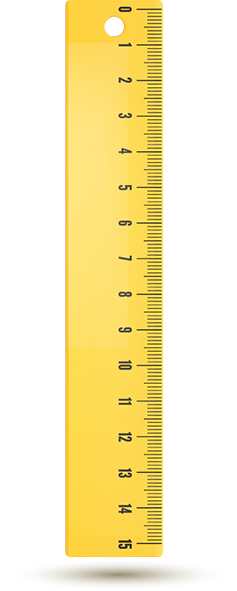
Your answer





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| --- | --- | --- | --- |
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|  |  |  | |